

#### ABSTRACT OF THE DISCLOSURE

A nutritional supplement for enhancing mitochondrial function, reducing age-associated DNA damage, protecting against age-associated deterioration in cognition and hearing loss and many other common deleterious changes that occur with the normal aging process is provided. The supplement includes nutritionally effective amounts of at least two components selected from the group consisting of acetyl-L-carnitine, N-acetyl cysteine, resveratrol, lecithin, and lipoic acid with the proviso that lipoic acid and acetyl-L-carnitine are not administered within the same supplement. In particular embodiments, resveratrol is present from 45 to 1000 mg in combination with one of: 600 to 3000 mg acetyl-L-carnitine, 250 to 2000 mg N-acetyl cysteine, 200 to 2000 mg lecithin, and 100 to 750 mg alpha-lipoic acid. The nutritional supplement of the present invention is preferably taken on a daily basis.